REMARKS

Claims 1-10 were pending in the present application. Claims 1-8 were amended to correct typographic errors. Accordingly, claims 1-10 remain pending in the present application.

Claim 6 is objected to for being in an improper form. Applicant has amended claim 6 to overcome the Examiner's objection.

Claims 1-3, 6, 7, and 10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Boytim et al. (U.S. Patent Number 6,078,622) (hereinafter "Boytim") in view of Renard et al. (U.S. Patent Number 6,081,691) (hereinafter "Renard"). Applicant respectfully traverses this rejection.

Claims 4 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Boytim in view of Renard and in further view of Groshong (U.S. Patent Number 6,218,972) (hereinafter "Groshong"). Applicant respectfully traverses this rejection.

Claims 8 and 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Boytim in view of Renard and in further view of Johnstone et al. (U.S. Patent Number 5,898,680) (hereinafter "Johnstone"). Applicant respectfully traverses this rejection.

The Examiner asserts that the combination of Boytim and Renard teach or suggest the features recited in Applicant's claim 1. Applicant respectfully disagrees with the Examiner's characterization of Boytim and his assertion for the combinability of Boytim and Renard to obtain the Applicant's invention. In addition Applicant disagrees that there is any motivation, either explicit or inherent in either Boytim or Renard, to combine the references.

Further, the Examiner has asserted that item 10 in FIG. 1 of Boytim is analogous to the claimed single preprocessing module. Applicant respectfully disagrees with this assertion as described below.

Specifically, Boytim teaches in the Abstract

> "A central digital signal radio processor (DRSP) is separated from all analog inputs and outputs by digital data links. Each end of a data link couples to an interface which has transmit and receive capability using cancellation techniques to allow full duplex transmission. An antenna module located at the antenna processes much of tuning functions in analog and then converts the signal to digital and sends it to the DRSP for further processing." (Emphasis added)

Boytim also teaches at col. 3, lines 24-46

> "The preferred embodiment of this invention is embodied in the architecture shown in FIG. 1. A single central digital processing unit, or digital radio signal processor (DRSP) 10, is shared by all communications tasks and surrounded by the digital peripheral elements necessary to interface with the user and the analog world. These peripheral elements includes remote antenna modules 12 for AM/FM, AM/FM with RF diversity (utilizing two spaced antennas), cellular phone, GPS, and DAB, for example. Other peripheral elements are remote microphone modules 14 for use with cellular phone or other transceiver applications and remote speaker modules 16. User interface is provided by a remote display 18 and a remote user control 20. A digital interface to the vehicle is also anticipated. Digital data links 22 couple the DRSP 10 with each of the peripherals 12-14 and links 24 couple the DRSP with peripherals 16-20. These links can be either electrical or optical, although electrical offers the advantage that power can also be provided via the data interconnect." (Emphasis added)

Boytim further discloses at col. 4, line 27 through col. 5 line 28

> "The remote antenna module 12 interfaces the antenna element itself to the central digital radio signal processor via an appropriate digital interconnect. The module **must** contain sufficient circuitry to select and digitize a receive signal and, for transceive applications, construct and amplify a transmit signal, and exchange information with the digital interconnect. It is possible to have multiple antennas associated with a single module and is within the scope of the general architecture.
> The information bearing signal present on the antenna itself which is converted to digital is the primary signal. Other control and status information relevant to processing the primary signal, considered secondary information, must also be communicated with the central processor. Examples of secondary information are RF level, LO (local oscillator) frequency, and reference clock.
> ...

A block diagram of the antenna module for a typical (narrow-band) receive application 38 is shown in FIG. 3 and for a typical (narrow-band) transceive application 40 is shown in FIG. 4. Many details will vary according to the specific requirements of the individual radio services. The function of the module essentially represents a truncated signal path of an otherwise typical radio signal path, except for the addition of data converters and a data link interface. The `missing` portions of the signal path are implemented digitally in the central processor or DRSP 10. In the embodiment shown here, the receiver antenna module 38 receives a band of frequencies from the antenna, amplifies the signal, mixes it with a local oscillator. signal, IF filters the mixed signal, then performs automatic gain control and converts the analog signal to a digital signal. The DRSP 10 completes the necessary radio functions by digital IF filtering, demodulation, detection, noise blanking, FM decoding (for FM mode), audio processing (noise concealment) and acoustic processing (operating on tone, speaker equalization, and volume) prior to sending a digital output to the speakers.
In the receive direction, the antenna signal is filtered with a tuned radio frequency (RF) network 42, 44 to avoid overload by undesired signals and then amplified in a tuned amplifier 44 and mixed in mixer 46 to an appropriate intermediate frequency (IF) and it is again filtered at IF filter 48 and amplified. In the digital radio application, the IF filter also performs the anti-aliasing function required for the conversion to digital. An automatic gain control (AGC) circuit 50 scales the signal to accommodate the limited dynamic range of an analog-to-digital converter (ADC) 52. The output of the ADC 52 is a digital representation of the signal which is then transmitted to the central processor by a data link interface (DLI) 54 and the coaxial cable 22." (Emphasis added)

From the foregoing it is clear that Boytim teaches a separate antenna module for each frequency band. As shown in FIG. 1, each antenna module is used for a distinct frequency band. Also each antenna module independently performs **all** the necessary analog receive functions for its respective frequency band. In addition, the DSRP of Boytim receives each digitized version of the frequency band from each of the antenna modules and digitally processes the respective signals. Further, although Boytim mentions that a given link between a module and DSRP may send and receive simultaneously to accommodate full duplex operation, Boytim is silent on whether two different radio protocols (signals from two different antenna module) may be processed simultaneously.

Accordingly, Applicant submits Boytim **does not teach or suggest** "enabling simultaneous reception firstly of multi-carrier digital audio broadcast (DAB) signals in a first frequency band (11), and secondly, radio global positioning signals (GPS) in a second frequency band" as recited in Applicant's claim 1. In addition, since Boytim is silent on simultaneous processing of different frequency bands, Boytim does not teach or suggest "simultaneously displaying the processed multi-carrier digital audio broadcast (DAB) signals and the processed radio global positioning signals (GPS)," as recited in Applicant's claim 1.

The Examiner acknowledges that Boytim does not teach "a pass-band antenna filter (211) in which the pass-band includes at least said first and said second frequency bands, simultaneously outputting firstly to a first processing system (22) for processing the multi-carrier digital audio broadcast (DAB), and secondly to a second processing system (23) for processing the said radio global positioning signals (GPS)." However the Examiner asserts that Renard teaches this limitation.

Applicant respectfully disagrees with the Examiner's assertion and submits that Boytim does, in fact, teach a pass-band antenna filter. However, as described above, Boytim teaches each antenna module has a pass-band antenna filter, and it is for a specific frequency band. Boytim further explicitly states at col. 4 "The module **must** contain sufficient circuitry to select and digitize a receive signal." Applicant further submits Boytim does not teach a single preprocessing module that includes a pass-band antenna filter used for more than one frequency band.

In addition, Applicant submits Renard teaches receiving a GPS signal and a GLONASS signal. Applicant notes however, that while being a multi-carrier signal, GLONASS **is not** a digital audio broadcast (DAB) signal as specified in Applicant's claim 1. GLONASS is a satellite-transmitted signal used for navigation, similar to GPS. DAB, on the other hand, is a developing technology for broadcasting audio programming in digital form via a terrestrial network. Thus, Renard **does not teach** "the device comprising a single preprocessing module (21), including a pass-band antenna filter (211)

in which the pass-band includes at least said first and said second frequency bands, simultaneously outputting firstly to a first processing system (22) for processing the multi-carrier digital audio broadcast (DAB), and secondly to a second processing system (23) for processing the said radio global positioning signals (GPS)," as recited in Applicant's claim 1.

Thus, from the foregoing arguments, Applicant submits that Boytim does not teach or suggest simultaneous reception/processing of the different frequency bands, nor does Boytim teach or suggest simultaneous displaying of the information corresponding to the two frequency bands. Applicant also submits that Boytim does teach that each antenna module must include a pass-band filter for a specific frequency band. Applicant submits that there is no motivation to combine Boytim with Renard in the manner in which the Examiner has suggested. To the contrary, since Boytim explicitly states that there **must** be circuitry to in each antenna module to perform the receive task, Boytim teaches away from any combination that would include having a receive pass-band filter with more than one frequency band. In addition, Applicant submits that even if, *arguendo*, one were to combine the two references, one would not arrive at the invention recited in Applicant's claim 1.

Thus, Applicant submits none of the cited references, taken singly or in combination, teach or suggest the combination of features recited in Applicant's claim 1. Accordingly, Applicant submits claim 1, along with its dependent claims, patentably distinguishes over the cited art for the reasons given above.

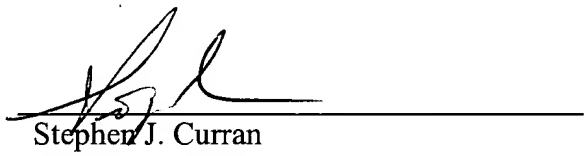
Claim 10 recites features that are similar to the features recited in claim 1. Thus, Applicant submits claim 10 patentably distinguishes over the cited art for at least the reasons given above.

CONCLUSION

Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5957-08000/BNK.

Respectfully submitted,



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